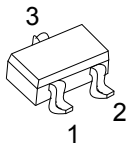
MMBT5551

NPN SILICON TRANSISTOR

HIGH VOLTAGE SWITCHING TRANSISTOR



SOT-23
(JEDEC TO-236)

■ DESCRIPTION

The UTC **MMBT5551** is a high voltage fast-switching NPN power transistor. It is characterized with high breakdown voltage, high current gain and high switching speed.

■ FEATURES

* High Collector-Emitter Voltage: V_{CEO}=160V
* High current gain

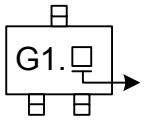
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MMBT5551L-x-AE3-R	MMBT5551G-x-AE3-R	SOT-23	B	E	C	Tape Reel

Note: Pin Assignment: B: Base E: Emitter C: Collector

MMBT5551G-x-AE3-R (1)Packing Type (2)Package Type (3)Rank (4)Green Package	(1) R: Tape Reel (2) AE3: SOT-23 (3) x: refer to Classification of h_{FE} (4) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



L: Lead Free
G: Halogen Free

■ ABSOLUATE MAXIUM RATINGS (T_A= 25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector -Base Voltage	V_{CBO}	180	V
Collector -Emitter Voltage	V_{CEO}	160	V
Emitter -Base Voltage	V_{EBO}	6	V
DC Collector Current	I_C	600	mA
Power Dissipation	P_D	350	mW
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-40 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	357	°C/W
Junction to Case	θ_{JC}	104	°C/W

■ ELECTRICAL CHARACTERISTICS (T_A= 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	V_{CBO}	I_C=100μA, I_E=0	180			V
Collector-Emitter Breakdown Voltage	V_{CEO}	I_C=1mA, I_B=0	160			V
Emitter-Base Breakdown Voltage	V_{EBO}	I_E=10μA, I_C=0	6			V
Collector Cut-off Current	I_{CBO}	V_{CB}=120V, I_E=0			50	nA
Emitter Cut-off Current	I_{EBO}	V_{BE}=4V, I_C =0			50	nA
DC Current Gain(note)	h_{FE}	V_{CE}=5V, I_C =1mA	80			
		V_{CE}=5V, I_C =10mA	80	160	400	
		V_{CE}=5V, I_C =50mA	80			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C=10mA, I_B=1mA			0.15	V
		I_C=50mA, I_B=5mA			0.2	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	I_C=10mA, I_B=1mA			1	V
		I_C=50mA, I_B=5mA			1	V
Current Gain Bandwidth Product	f_T	V_{CE}=10V, I_C =10mA, f=100MHz	100		300	MHz
Output Capacitance	C_{ob}	V_{CB}=10V, I_E=0, f=1MHz			6.0	pF
Noise Figure	NF	I_C=0.25mA, V_{CE}=5V R_S=1kΩ, f=10Hz ~ 15.7kHz			8	dB

Note: Pulse test: PW<300μs, Duty Cycle<2%

■ CLASSIFICATION OF h_{FE}

RANK	A	B	C
RANGE	80-170	150-240	200-400

■ TYPICAL CHARACTERICS

Fig.1 Collector Output Capacitance

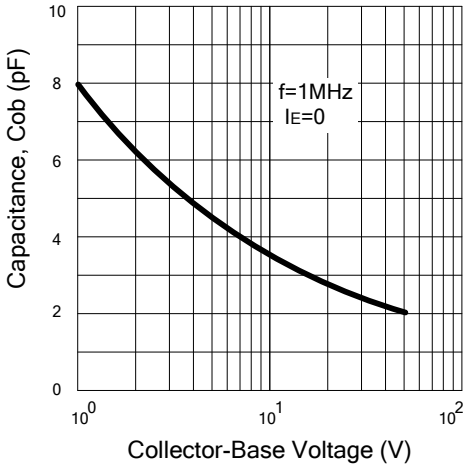


Fig.2 DC Current Gain

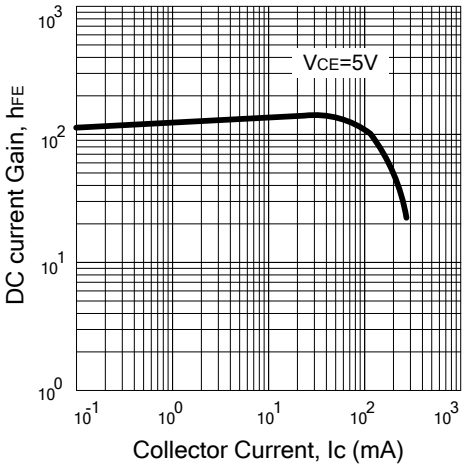


Fig.3 Base-Emitter on Voltage

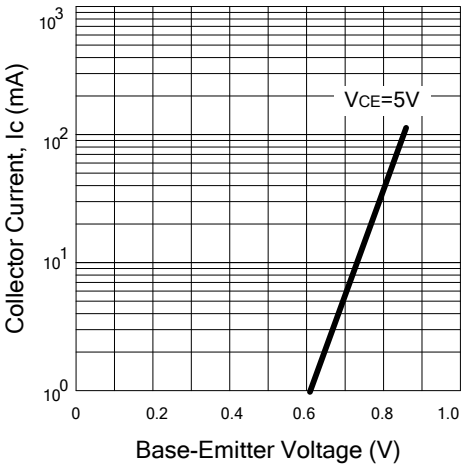


Fig.4 Saturation Voltage

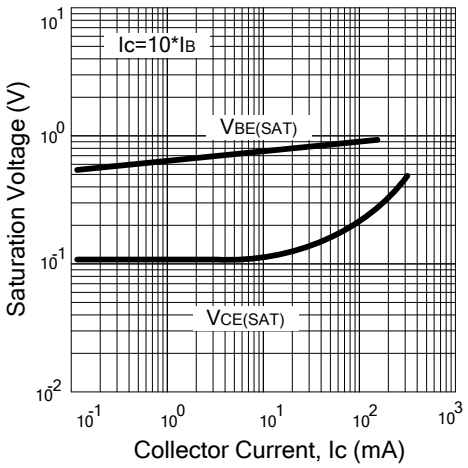
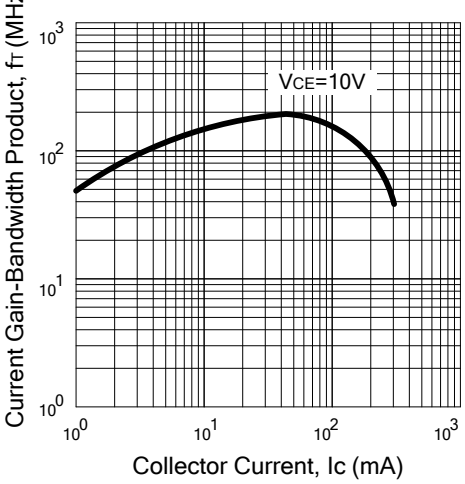


Fig.5 Current Gain-Bandwidth Product



SAFE OPERATING AREA